PROPOSED IMPROVEMENTS TO RED AND BONITA POND SYSTEM

Current Configuration

- 75 feet long x 33 feet wide at base with 2H:1V side slopes
- Two internal berms with effective widths of 5.5 feet and 3.5 feet
- Effective water depth of 3'

Current Configuration with Raised Internal and South/West Berms

- 75 feet long x 33 feet wide at base with 2H:1V side slopes
- Two internal berms with effective widths of 5.5 feet and 3.5 feet
- Internal berms raised to 4+' using hay bales/coir log and geotextile
- Notch in each internal berm for water flow to next cell
- Add diffuser or baffle at water entry to reduce turbulence
- Effective water depth of 4'

Proposed Configuration

- 90 feet long x 33 feet wide at base with 2H:1V side slopes
- Three internal berms with effective widths of 5.5 feet, and 5.5 feet, and 3.5 feet
- Internal berms raised to 5.5' using hay bales/coir log and geotextile
- Notch in each internal berm at 5' above base for water flow to next cell
- Add diffuser or baffle at water entry to reduce turbulence
- Effective water depth of 5'

	Current	Current + Berm Upgrade	Current + Berm Upgrade + Extended Length
Empty Pond			
Pond Volume (ft^3)	8400	12,100	18,400
Pond Volume (yd^3)	311	448	681
Residence Time (hours)	3.5	5	7.6
Pond contains compacted adit solids from 325' of tunnel with solids 4' wide and 2' deep			
Effective Pond Volume (ft^3)	5800	9500	15,800
Effective Pond Volume (yd^3)	191	328	561
Residence Time for 300 gpm inflow (hours)	2.4	3.9	6.6
Pond contains solids from 325' long adit x 4' wide x 2' deep with 60% expansion			
Effective Pond Volume (ft^3)	4240	7940	14,200
Effective Pond Volume (yd^3)	157	294	527
Residence Time for 300 gpm inflow (hours)	1.8	3.3	5.9
Pond contains solids from 325' long adit x 4' wide x 2' deep with 100% expansion			
Effective Pond Volume (ft^3)	3200	6900	13,200
Effective Pond Volume (yd^3)	119	256	489
Residence Time for 300 gpm inflow (hours)	1.3	2.9	5.5

The proposed 15' pond extension with increased outer berm heights to accommodate 5' of water in the entire pond would result in an additional 120% capacity (final capacity = 2.2 times the original capacity). The increase is due to the additional footprint plus the increased water depth.

If the pond is not extended, but the outer and inner berms are increased to accommodate 4' of water in the current pond, the capacity would increase by 44%.

Liner Calculations for Proposed Pond Extension

- 90 feet long x 33 feet wide at base with 2H:1V side slopes
- Three internal berms with effective widths of 5.5 feet, and 5.5 feet, and 3.5 feet
- Internal berms raised to 5.5' using hay bales/coir log and geotextile
- 3' width at the top of all berms
- Replace all existing fabric to accommodate increase in existing berm height and pond length.
- 12' of geotextile extending past the exterior top of berm on the east, west, and south slopes.
- 4' of geotextile extending past the exterior top of berm to the north
- No overlap, corner folds, or waste included in calculations.
- Dimensions from north to south:

Description	**Dimension (ft)**
North end bury	4
Top of north berm	3
2:1 slope into pond at north end	13.5
Bottom of pond minus the 3 internal berm bases	90-8-8-5
Internal berm side slopes (3 berms)	6 each x 6
Internal berm tops	3 each x 3
2:1 slope out of pond at south end	13.5
Top of south berm	3
South slope cover/bury	12
Total Length	**163 feet**

- Dimensions from east to west:

Description	**Dimension (ft)**
East end slope cover/bury	12
Top of east berm	3
2:1 slope into pond at east end	13.5
Bottom of pond	33
2:1 slope out of pond at west end	13.5
Top of west berm	3
West slope cover/bury	12
Total Length	**90 feet**

- Geotextile Estimate = 163' x 90' = 14,670 square feet